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Published in:
European Accounting Review

DOI:
10.1080/09638180.2017.1329659

Publication date:
2018

European Accounting Review

ISSN: 0963-8180 (Print) 1468-4497 (Online) Journal homepage: http://www.tandfonline.com/loi/rear20

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To cite this article: Ronny Prabowo, Reggy Hooghiemstra & Paula Van Veen-Dirks (2018) State Ownership, Socio-political Factors, and Labor Cost Stickiness, European Accounting Review, 27:4, 771-796, DOI: 10.1080/09638180.2017.1329659

To link to this article: https://doi.org/10.1080/09638180.2017.1329659

Published online: 28 May 2017.

European Accounting Review, 2018
Vol. 27, No. 4, 771–796, https://doi.org/10.1080/09638180.2017.1329659

State Ownership, Socio-political Factors, and Labor Cost Stickiness

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(*Received: April 2015; accepted: May 2017*)

Abstract This article examines the effect of state ownership on the labor cost stickiness of firms in 22 European countries. States are more likely to interfere in the decision-making processes of state-owned enterprises (SOEs) and demand firm activities that are desirable from a socio-political perspective. For example, to win political support, politicians may instruct SOEs to avoid layoffs to minimize unemployment rates. The varied objectives of SOEs also make it more difficult to control managers' behavior, leaving more room for managerial discretion and the pursuit of self-interests through empire-building behavior. Both state intervention and managerial self-interest restrain managers from laying off employees or reducing employee wages when sales decrease, which may lead to greater labor cost stickiness. Data from 1993 to 2012 reveal that SOEs exhibit greater labor cost stickiness than private firms, and their labor cost stickiness also varies predictably with socio-political variables such as election years and left-wing governments.

1. Introduction

This study focuses on the differences in labor cost stickiness between state-owned enterprises (SOEs), which are fully or partially owned by a government (Gupta, 2005; Megginson, 2005; Wang & Yung, 2011), and private firms. Increased pressures to pursue socio-political objectives and the difficulties involved in controlling managers, due to the wider range of objectives they confront, cause SOEs to operate less efficiently. Consequently, we predict, and find, that SOEs exhibit greater labor cost stickiness than private firms. Moreover, we predict that membership in strategic industries, election years, and left-wing governments increase SOEs' labor cost stickiness. Finally, firms are predicted to show less labor cost stickiness in the year prior to privatization. Using a data set that spans 22 European countries and 40,418 observations for 1993–2012, we document that except for membership in strategic industries these socio-political factors affect the degree of cost stickiness.

Cost stickiness exists if costs increase more when the level of activity rises than they decrease when this activity level falls (e.g. Anderson, Banker, & Janakiraman, 2003; Banker, Byzalov, & Chen, 2013; Chen, Lu, & Sougiannis, 2012). It arises from managers' resource

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Paper accepted by Laurence van Lent.

adjustment decisions. When activity levels increase, managers add resources to meet growing demand; when activity levels fall, they retain their underutilized resources, because they perceive the costs of reducing the resources as higher than the costs of holding them (Anderson et al., 2003).

Notwithstanding widespread privatization in recent decades, states still own shares in many firms, and SOEs remain an important component of European countries' economies (e.g. Christiansen, 2011; Megginson, 2005). In our sample for example, SOEs account for about 12.62% and 17.60% of total employees and total revenues, respectively. Many SOEs also dominate strategic industries (e.g. utilities, electricity, mining, and defense), which enhances their importance for countries' economies. The importance of SOEs in turn has generated a considerable stream of literature about the effects of state ownership on firm performance and firm behavior (e.g. Ben-Nasr, Boubakri, & Cosset, 2012; Boubakri & Cosset, 1998; D'Souza & Megginson, 1999; Gupta, 2005). However, a research area that remains unexplored is the effect of state ownership on cost behavior, even though financial performance is strongly influenced by cost behavior.

In this sense, a key feature of SOEs is that the state can interfere in their decision-making processes and operations. This direct influence enables governments or politicians to leverage SOEs to realize their broader goals, such as social objectives, or to secure their own political interests (Megginson, 2005; Shleifer, 1998; Shleifer & Vishny, 1994). It follows that profit maximization is not SOEs' sole objective; rather, they have multiple objectives and must weigh different interests. It is thus unclear how SOEs' overall performance should be measured, which in turn makes monitoring SOE managers very complex, such that these managers may have an easier time pursuing their own self-interests (Bai, Li, Tao, & Wang, 2000; Sapienza, 2004; Tirole, 1994) and building empires (Chen et al., 2012). Accordingly, SOEs are likely to operate less efficiently than private firms (Boardman & Vining, 1989; Dewenter & Malatesta, 2001). For example, SOEs are less inclined to lay off employees or reduce employee wages when sales decrease, which leads to greater cost stickiness. We focus on differences in *labor* cost stickiness, because prior literature indicates that decision-makers in SOEs concentrate particularly on labor-related issues, such as employment and wage levels (e.g. Boycko, Shleifer, & Vishny, 1996; Shleifer, 1998; Shleifer & Vishny, 1994).

In so doing, we offer several contributions to prior literature. First, we contribute to cost stickiness literature by examining SOEs' cost behavior in 22 European countries. Although Bu, Wen, and Banker (2015) have analyzed the effect of state ownership on cost stickiness, their study is limited to China, with its unique institutional features.[1] Our cross-country data enable us to incorporate the effects of country-level variables, which is relevant because SOE behavior relates closely to country-level socio-political and institutional characteristics. Governments have incentives to exploit their ownership of SOE shares for socio-political interests, and these incentives vary with factors such as election years and government political orientation. By including these socio-political variables to explain the cost stickiness of SOEs, we provide new insight into SOEs' cost management practices. Second, we contribute to emerging literature on the impact of state interference on firm behaviors and outcomes, such as the firm's performance (e.g. Boubakri & Cosset, 1998; D'Souza & Megginson, 1999; Gupta, 2005; Megginson, Nash, & van Randenborgh, 1994), the cost of capital (e.g. Ben-Nasr et al., 2012), or risk-taking behavior (Boubakri, Cosset, & Saffar, 2013). By studying the impact of state ownership on cost stickiness, we contribute to a clearer understanding of how state interference affects firms' cost behavior. Our

[1] We develop our hypotheses independently from Bu et al. (2015).

findings suggest that performance differences between SOEs and private firms (e.g. Boardman & Vining, 1989; Dewenter & Malatesta, 2001) can be attributed, at least partly, to differences in resource adjustment decisions.

2. Hypotheses Development

2.1. Determinants of Cost Stickiness

Cost stickiness has been documented in various countries and for various cost categories (Banker, Byzalov, & Chen, 2013; Banker, Byzalov, & Threinen, 2013; Calleja, Steliaros, & Thomas, 2006; Dierynck, Landsman, & Renders, 2012). Explanations for this phenomenon usually rely on resource adjustment costs: A firm incurs costs when it disposes of resources and then has to reacquire those resources after activities return to their previous levels (Anderson et al., 2003; Banker, Byzalov, & Chen, 2013; Banker, Byzalov, & Threinen, 2013). For example, firms provide severance payments to lay off employees when sales decline, then must spend time and costs to recruit and train new employees when sales increase again. When sales decline, removing unutilized resources with high adjustment costs might be more costly than retaining them, so resources with high adjustment costs justify greater cost stickiness (Anderson et al., 2003). It is also likely that cost stickiness is influenced by managerial self-interest. For example, managers refuse to lay off employees because doing so would be in direct conflict with their desire to build an empire (Chen et al., 2012), because they fear losing status, or because they are unwilling to deal with the challenge of negotiating with angry employees (Anderson et al., 2003). The firm's governance structure also influences cost stickiness; it incentivizes managers to make certain decisions that affect cost behavior. For example, better corporate governance reduces cost stickiness by restraining managers' empire-building behavior (Chen et al., 2012). Similarly, firms in countries that better protect shareholders tend to exhibit less cost stickiness (Banker, Byzalov, & Threinen, 2013; Calleja et al., 2006).

2.2. State Ownership and Cost Stickiness

Different ownership types provide different incentives for owners to invest in cost-controlling activities, because ownership type dictates how the benefits of those activities accrue to owners (Grossman & Hart, 1986; Hart & Moore, 1990; Shleifer, 1998), resulting in different cost behaviors of firms with different owners (Hall, 2016; Holzhacker, Krishnan, & Mahlendorf, 2015). Unlike other owners, states have socio-political interests. It is thus likely that SOEs pursue broader social objectives than private firms do, such as employing a large number of people to reduce unemployment rates (Bai et al., 2000; Megginson, 2005). Political self-interest also encourages politicians to intervene in SOEs' activities, which may, for example, lead to a transfer of wealth to voters at the expense of the firm. Through their political control over SOEs, politicians can instruct these firms to incur more labor costs (e.g. excess wages, maintaining employment levels) in an effort to win political support (Boycko et al., 1996; Shleifer, 1998; Shleifer & Vishny, 1994). Such socio-political objectives could conflict with other interests, such as those of shareholders, if they undermine the firm's financial performance or shareholder value maximization. Prior studies accordingly document detrimental effects of political intervention on SOEs' financial performance (e.g. Micco, Panizza, & Yanez, 2007; Shleifer, 1998; Shleifer & Vishny, 1994).

The inclusion of socio-political objectives also makes the goals of SOEs more diverse than those of private firms. Measuring progress against business objectives is generally a challenging

task; it is especially difficult in relation to socio-political objectives (Bai et al., 2000; Sapienza, 2004; Tirole, 1994). Further complicating the performance measurement efforts in SOEs is the inherent difficulty of determining the relative importance of various objectives. For example, what is more important, hiring employees or financial performance? Because overall SOE performance is so difficult to measure, the shareholders' task of monitoring SOE managers' behavior effectively becomes particularly complex, and the space for managerial discretion expands (Bai et al., 2000; Sapienza, 2004; Tirole, 1994). Therefore, SOE managers can more easily pursue their own self-interests and use SOE socio-political objectives as an excuse for their own underperformance.

We thus predict that SOEs exhibit greater cost stickiness than private firms. First, politicians may use the state's ownership to instruct SOE managers not to reduce labor resources (e.g. employee layoffs, wage reduction) even if sales decrease, which would maintain the current employment levels and, subsequently, help the politicians win votes (Boycko et al., 1996; Shleifer, 1998; Shleifer & Vishny, 1994). Private firms have no need to take such socio-political considerations into account in their labor resource adjustment decisions, so their decisions should be less asymmetric. Second, SOE managers are less likely to reduce their labor resources during a sales decline, in support of their own interests or to avoid having to make difficult layoff decisions (Anderson et al., 2003; Chen et al., 2012), because they can use SOE socio-political objectives as decision rationales. In this context, the state, as a shareholder, would have a hard time disciplining this behavior, because of the difficulty of measuring overall SOE performance (Bai et al., 2000; Sapienza, 2004; Tirole, 1994). Measuring performance is more straightforward in private firms, because their primary objective is profit maximization. The focus on financial performance measures makes it easier for shareholders of private firms to discipline firm managers that fail to meet profit maximization goals. Accordingly, our first hypothesis is

H1: SOEs exhibit greater labor cost stickiness than private firms.

2.3. Labor Cost Stickiness in SOEs and Socio-Political Variables

Next, we turn to the question of why such cost behavior typically is associated with SOEs. A key assumption of SOE/privatization literature is that SOEs' behaviors and outcomes depend on various governance and socio-political factors (e.g. Ben-Nasr et al., 2012; Boubakri et al., 2013). Governments exert influence on societies in general, so socio-political variables likely affect private firms' behaviors too. Yet compared with SOEs, private firms should be less subject to government interventions, in that the costs of intervening in private firms are much higher than those for influencing SOEs (Sappington & Stiglitz, 1987). Accordingly, we argue that the effect of socio-political variables on cost stickiness is stronger for SOEs than for private firms.

Our first variable of interest refers to the industry in which the SOE operates. Firms in strategic industries such as utilities, electricity, mining, and defense likely have greater labor cost stickiness, because they typically are more technology-intensive than are non-strategic industries (Soete, 1991). Consequently, firms in strategic industries tend to rely more on skilled employees that incur higher adjustment costs, which eventually leads to greater cost stickiness (Banker, Byzalov, & Chen, 2013). However, the effect of strategic industries on labor cost stickiness is likely to be stronger for SOEs. As suggested by Boubakri, Cosset, and Guedhami (2009), belonging to strategic industries puts SOEs under more public scrutiny and more intense government intervention. This greater socio-political pressure likely increases the labor cost stickiness of

SOEs, because SOE managers are more reluctant to adjust labor costs downward when sales decline. This discussion leads to the following hypothesis:

H2a: The effect of strategic industries on labor cost stickiness is stronger in SOEs than in private firms.

Election years affect the behavior of ruling governments (Besley & Burgess, 2002). Mechtel and Potrafke (2013) show that ruling governments promote labor-friendly policies to win electoral support. Such labor policies likely increase labor cost stickiness for both SOEs and private firms, because they make it more difficult for both types of firms to reduce their labor force or compensation when sales decline.

The effect of election years on labor cost stickiness is likely stronger in SOEs, because private firms are better able to resist labor-friendly policies (Kleiner, 2001), whereas SOEs have fewer options to do so. This argument is in line with research into the political role of SOEs during election years. For example, election years significantly increase state-owned banks' lending in emerging countries, apparently to improve the electoral results for the ruling politicians (Dinc, 2005). This approach increases state-owned banks' underperformance problem (Micco et al., 2007). In an attempt to avoid popular discontent during election years, politicians likely instruct SOE managers not to lay off employees or cut their wages when sales decline. Therefore, we predict that election years amplify the labor cost stickiness of SOEs and hypothesize:

H2b: The effect of election years on labor cost stickiness is stronger in SOEs than in private firms.

In addition, left-wing governments tend to pursue more labor-friendly policies, whereas right-wing ones are more market-oriented (Hibbs, 1977). Left-wing governments are thus associated with lower unemployment rates (Hibbs, 1977) and higher minimum wages (Saint-Paul, Bean, & Bertola, 1996), which implies greater cost stickiness for all firms due to the labor-friendly policies. Nevertheless, the effect of left-wing governments on labor cost stickiness should be more evident in SOEs, because these governments tend to use their SOEs as a tool to achieve broader political goals (Avsar, Karayalcin, & Ulubasoglu, 2013), such that SOEs are subject to more intense intervention. For example, to support their political agenda, left-wing governments likely instruct SOEs not to fire employees or reduce their compensation even when sales decline. In this situation, SOEs will be slower to scale down their labor costs. Private firms are more capable of resisting labor-friendly policies (Kleiner, 2001), so we predict that the effect of left-wing governments on labor cost stickiness is more pronounced for SOEs than for private firms. This reasoning leads to the following hypothesis:

H2c: The effect of left-wing governments on labor cost stickiness is stronger in SOEs than in private firms.

The last variable of interest is the privatization year. Prior to privatization, states tend to cut costs aggressively to improve SOEs' performance and thereby maximize the proceeds from selling their shares (Megginson, 2005). This aggressive cost-cutting likely causes a decrease in cost stickiness in the year prior to privatization. Using this argument, we posit:

H2d: In the year prior to the privatization, privatized firms exhibit less labor cost stickiness than in other pre-privatization years.

During and after privatization, performance generally improves, because the level of private ownership increases, and firms experience increased performance pressures (e.g. Boubakri & Cosset, 1998; D'Souza & Megginson, 1999; Gupta, 2005; Megginson et al., 1994). These pressures arguably reduce labor cost stickiness further. However, as indicated by Banker and Fang (2013) in a loan financing setting, it can also be argued that during and after privatization, the incentives to improve performance through aggressive cost-cutting may decrease, because the government has accomplished its objective. In a similar vein, labor costs may be stickier than

they were before, because privatized firms need to restructure their labor forces to meet new private owners' demands or to address the aftermath of unsustainable pre-privatization cost-cutting decisions (Chong, Guillen, & Lopez-de-Silanes, 2011). Therefore, the prediction for these periods is ambiguous.

3. Methods

3.1. Sample Selection

We use annual data from Datastream on European nonfinancial listed firms for the years 1993–2012. We start our sample period in 1993, when the Maastricht Treaty went into effect. The Treaty requires member states to keep their budget deficit below 3% of total gross domestic product (GDP) and their sovereign debt at no more than 60% of total GDP. These budget requirements created an impetus for member countries to privatize their SOEs.

To obtain privatization data, we identify all nonfinancial firms covered by the Privatization Barometer and check whether they appear in Datastream. The Privatization Barometer database contains information about privatizations in European countries (Fondazione Eni Enrico Mattei, 2013); it informs prior research into privatizations in the European Union (e.g. Borisova, Brockman, Salas, & Zagorchev, 2012; Boubakri et al., 2009). The Privatization Barometer also provides data about state ownership and privatization years. Similar to Borisova et al. (2012), we define direct state ownership to include ownership by non-central government entities (e.g. provincial or municipal governments) and entities established specifically to manage the central government's funds.[2] To ensure the accuracy and validity of our data, we gather information about the firms' state shareholders from annual reports and websites. The verification procedure spans all available annual reports of all firms. If there is no information about firm shareholders, we rely on the Privatization Barometer data.

Following Anderson et al. (2003) and Banker, Byzalov, and Chen (2013), we delete firm-year data that contain missing, zero, or negative values for revenues, labor costs in the current year or the two prior years, or current total assets. We also discard firm-year data if $LaborCosts_t > Sales_t$ or $LaborCosts_{t-1} > Sales_{t-1}$, where *LaborCosts* refers to a firm's total labor costs. Observations in which the sales increase is greater than 50% or the decrease is more than 33% are excluded too, because such large changes likely indicate mergers and divestitures (Banker, Byzalov, & Chen, 2013). Furthermore, we screen for missing data about state ownership and require that firms use the same reporting currencies for the current year and two prior years. Finally, we delete the 1% outliers for each tail of labor cost change and revenue change. Thus the final sample includes 40,418 firm-year observations of 5931 unique firms, including 1208 observations (148 unique firms) involving state ownership.[3]

3.2. Model Specification and Variable Measurement

To operationalize labor costs, we use the *Salaries and Benefit Expenses* item in Datastream, which represents all wages and other benefits assigned to employees and officers. Following

[2]Some countries establish special entities to perform activities on behalf of the state, such as those that invest state funds in other firms to generate returns for the states (e.g., Solidium in Finland, Parpublica in Portugal). Other entities serve non-economic purposes, such as the CEA (Commissariat à l'Energie Atomique et aux énergies alternatives), established to facilitate France's nuclear development.

[3]Because we obtain the SOE sample from the Privatization Barometer and Datastream, our sample generally excludes SOEs that are wholly owned by the state.

Anderson et al. (2003) and Chen et al. (2012), we employ the following model to test H1:

$$\begin{aligned}\Delta lnLaborCost_{i,t} = {} & \beta_0 + \beta_1 \cdot \Delta lnSales_{i,t} + \beta_2 \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_3 \\ & \cdot SOE_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_4 \cdot AsInt_{i,t} \cdot Dec_{i,t} \\ & \cdot \Delta lnSales_{i,t} + \beta_5 \cdot SucDec_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_6 \\ & \cdot EPL_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_7 \cdot CommonLaw_{i,t} \cdot Dec_{i,t} \\ & \cdot \Delta lnSales_{i,t} + \beta_8 \cdot Growth_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} \\ & + \cdot\gamma \cdot Standalone\ Variables_{i,t} + \varepsilon_{i,t},\end{aligned} \tag{1}$$

where *LaborCost* and *Sales* are deflated total labor costs and net sales, respectively, and the subscripts i and t refer to firm i and year t, respectively. In addition, *Dec* is a dummy variable that equals 1 if sales decrease in the current year and 0 otherwise. The dummy variable *SOE* equals 1 if the government owns some percentage of the firm's shares and 0 otherwise. $\gamma \cdot StandaloneVariables$ is written in vector form and refers to the main variable *SOE* and to the control variables included in the interaction terms in equation (1) (*AsInt*, *SucDec*, *EPL*, etc.). To facilitate our interpretation of the results, we mean-center all the continuous variables in the interaction terms (Aiken & West, 1991). Consistent with prior research (Anderson et al., 2003; Dierynck et al., 2012), costs are sticky when $\beta_1 > 0$ and $\beta_2 < 0$. To confirm H1, which predicts that SOEs exhibit greater cost stickiness than private firms, we would require $\beta_3 < 0$.

Following prior studies (Anderson et al., 2003; Chen et al., 2012), we include two firm-level control variables in our analysis. First, we include asset intensity (*AsInt*), which is the total assets divided by net sales. Second, we control for successive decrease (*SucDec*), which is a dummy variable that equals 1 if $Sales_{i,t} < Sales_{i,t-1} < Sales_{i,t-2}$, and 0 otherwise (Dierynck et al., 2012).[4]

As country-level control variables, we include the Employment Protection Legislation (EPL) strictness index (*EPL*), legal origin (*CommonLaw*), and GDP growth (*Growth*). The EPL strictness index from the OECD measures the strictness of labor regulations with regard to employee dismissals; a higher value indicates stricter labor laws, which should be associated with higher firing costs and thus greater cost stickiness (Banker, Byzalov, & Chen, 2013).[5] The dummy variable *CommonLaw* equals 1 for common-law countries and 0 otherwise (La Porta, Lopez-de-Silanez, Shleifer, & Vishny, 1998). The effects of legal origin on cost stickiness are unclear: common-law countries are more shareholder-oriented (Calleja et al., 2006), but they also facilitate long-term resource commitments (Banker, Byzalov, & Chen, 2013; Banker, Byzalov, & Threinen, 2013). Finally, GDP growth (*Growth*), obtained from the World Bank, represents macroeconomic conditions in individual countries that may affect managerial optimism about the prospects for future sales (Anderson et al., 2003).

[4]Following Banker et al. (2013a, 2013b), we do not include employee intensity. This variable, measured by dividing total employees (non-financial data) by total sales (financial data) potentially leads to distorted results in cross-country research, due to the currency differences across countries.

[5]We use the unweighted average strictness of employment protections for regular and temporary workers. We had to exclude Cypriot, Lithuanian, and Maltese firms, because these countries do not appear in the OECD EPL Strictness database.

To test H2a–c, we split our observations into SOE and private firm subsamples and modify Equation (1) by omitting the *SOE* and *SOE·Dec·ΔlnSales* variables while adding the socio-political variables (and their interactions with *Dec·ΔlnSales*), to produce the following equation:

$$\begin{aligned} \Delta lnLaborCost_{i,t} = {} & \beta_0 + \beta_1 \cdot \Delta lnSales_{i,t} + \beta_2 \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta \\ & \cdot SocPolVar_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_4 \cdot AsInt_{i,t} \cdot Dec_{i,t} \\ & \cdot \Delta lnSales_{i,t} + \beta_5 \cdot SucDec_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_6 \\ & \cdot EPL_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_7 \cdot CommonLaw_{i,t} \cdot Dec_{i,t} \\ & \cdot \Delta lnSales_{i,t} + \beta_8 \cdot Growth_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} \\ & + \gamma \cdot Standalone\ Variables_{i,t} + \varepsilon_{i,t}, \end{aligned} \tag{2}$$

where *SocPolVar* refers to the socio-political variables of interest (i.e. *StratInd*, *ElecYear*, or *LeftWing*, as we discuss subsequently). $\gamma \cdot StandaloneVariables$ is written in vector form and refers to the main variables *StratInd*, *ElecYear*, and *Leftwing*, and to the control variables included in the interaction terms in Equation (2) (*AsInt*, *SucDec, EPL*, etc.).

In H2a, we predict that the coefficient on *StratInd·Dec·ΔlnSales* (β_9) is more negative in the SOE subsample than in the private firms subsample.[6] We follow Boubakri et al. (2009) and include mining, steel, transportation, utilities, defense, telecommunications, and oil as strategic industries. The dummy variable *StratInd* equals 1 if the firm operates in a strategic industry and 0 otherwise.

To test H2b, similar to Dinc (2005), we obtain election year data from the Europe World Year Book. For post-2006 data, we use the International Foundation for Electoral Systems' (2014) Election Guide website. The dummy variable *ElecYear* equals 1 if the year considered is an election year and 0 otherwise. To test H2c, similar to Ben-Nasr et al. (2012), we use annual data provided by the World Bank's Database of Political Institutions (Beck, Clarke, Groff, Keefer, & Walsh, 2001; Keefer, 2014) to obtain information about the political orientation of the ruling party. We construct a dummy variable (*LeftWing*) that equals 1 if the ruling government is left-wing and 0 otherwise. Similar to H2a, H2b–H2c predict that the coefficients on *ElecYear·Dec·ΔlnSales* (β_{10}) and *LeftWing·Dec·ΔlnSales* (β_{11}) are more negative in the SOE subsample than in the private firm subsample.

Our last socio-political variable is privatization. To test H2d, we construct several dummy variables. That is, *PrePriv1* is a dummy variable that equals 1 for the year prior to the privatization year and 0 otherwise. To compare *PrePriv1* with earlier pre-privatization years, we control for the effects of the privatization and post-privatization years by developing three dummy variables: *PrivYear*, *PostPriv. PrivYear* equals 1 for years in which the government sold shares of a particular SOE and 0 otherwise; *PostPriv*equals 1 if the observation takes place after a privatization year and 0 otherwise.[7] We estimate this model only for the SOE subsample, while using the earlier pre-privatization years as the baseline group. Support for H2d would require

[6]Cost stickiness corresponds to a negative number, so a more negative interaction coefficient represents greater cost stickiness.

[7]Alternatively, we develop two dummy variables that equal one if the observation takes place 1-5 (6 or more) years after a privatization year and 0 otherwise in order to control for a privatization year's short term and long term effects separately. This alternative analysis generate qualitatively similar results.

the coefficient β_{12} of *PrePriv1*·*Dec*·Δ*lnSales* to be positive. Specifically, we use Equation (3) to test H2d:

$$\begin{aligned}\Delta lnLaborCost_{i,t} = {} & \beta_0 + \beta_1 \cdot \Delta lnSales_{i,t} + \beta_2 \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_{12} \\ & \cdot PrePriv1_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_{13} \cdot PrivYear_{i,t} \cdot Dec_{i,t} \\ & \cdot \Delta lnSales_{i,t} + \beta_{14} \cdot PostPrev_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_{4;} \\ & \cdot AsInt_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_5 \cdot SucDec_{i,t} \cdot Dec_{i,t} \\ & \cdot \Delta lnSales_{i,t} + \beta_6 \cdot EPL_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_7 \\ & \cdot CommonLaw_{i,t} \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \beta_8 \cdot Growth_{i,t} \\ & \cdot Dec_{i,t} \cdot \Delta lnSales_{i,t} + \cdot \gamma \cdot Standalone\ Variables_{i,t} + \varepsilon_{i,t},\end{aligned} \tag{3}$$

where γ·*StandaloneVariables* is witten in vector form and refers to the main variable *PrePriv1* and to the control variables included in the interaction terms in equation (3) (*PrivYear*, *PostPriv*, *AsInt*, *SucDec, EPL*, etc.). In all models, we also include industry dummy variables, using the Fama-French (2016) 49 industries classification, to control for industry effects on firms' cost behavior. Finally, we add fiscal-year dummy variables to control for possible year effects. The appendix contains the variable definitions.

4. Empirical Results

4.1. Descriptive Statistics

In the overall sample, labor costs constitute 26.55% of total sales. In 37.34% of our observations, we find a sales decline in the current year, while 18.31% experience successive sales decreases. Panel A of Table 1 displays the descriptive statistics for each country.

In Panel B of Table 1, we divide the sample into SOEs and private firms. The SOEs experienced relatively fewer sales declines (*Dec* and *SucDec*); they also have more employees than private firms on average. At a 5% significance level, SOEs and private firms differ significantly only for one socio-political variable (*StratInd*). Most of the SOE observations do not relate to privatization years. Untabulated data indicate that the average percentage of government ownership in SOEs is relatively high (43.08%). Our data contain 206 firm-year observations with privatizations (48 that completely eliminate government ownership). On average, privatization reduces government ownership by 24.47%.

Table 2 contains the results of the Pearson and Spearman correlation tests of the associations among the main variables.

4.2. Main Results

Table 3 shows the results of the regressions for H1.[8] The first column in Table 3 only includes firm-level variables and affirms that our sample firms exhibit sticky cost behavior, with a significantly positive value of β_1(0.673, $t = 69.84$) and a significantly negative coefficient for *Dec*·Δ*lnSales* ($\beta_2 = -0.277$, $t = -16.90$). On average, labor costs rise by 0.673% for each 1% increase in net sales, but they diminish by only 0.396% (0.673%–0.277%) for each 1% decrease in net sales. The positive value of *SucDec*·*Dec*·Δ*lnSales* and the negative value of the

[8]Consistent with Chen et al. (2012) and Dierynck et al. (2012), we use firm-level clustered standard errors to control for intrafirm error correlation problems (Petersen, 2009).

Table 1. Descriptive statistics.

Panel A: Descriptive statistics of selected variables, per country

	n	Average labor costs/ sales	Average AsInt	Average Dec	Average SucDec	Average employees	Average GDP growth (%)	Average EPL strictness	Number (Proportion) of SOE
Austria	776	0.254	1.455	0.361	0.161	5128	2.019	2.205	126 (0.162)
Belgium	905	0.225	14.479	0.399	0.180	7241	1.749	2.709	21 (0.023)
Czech Republic	317	0.118	1.568	0.492	0.284	3954	2.756	2.354	46 (0.145)
Denmark	1439	0.276	1.593	0.347	0.161	5223	1.484	2.042	24 (0.017)
Estonia	25	0.161	1.354	0.280	0.120	2435	0.812	2.231	1 (0.040)
Finland	1217	0.276	0.950	0.339	0.149	5514	2.396	2.021	128 (0.105)
France	6676	0.290	1.213	0.364	0.187	13,142	1.402	3.291	180 (0.027)
Germany	5834	0.281	1.028	0.388	0.201	13,666	1.374	2.260	134 (0.023)
Greece	826	0.191	1.857	0.496	0.298	1723	− 1.157	2.911	49 (0.059)
Hungary	267	0.157	1.112	0.494	0.281	3537	2.290	2.099	39 (0.146)
Ireland	438	0.212	1.696	0.342	0.169	3241	4.338	1.402	10 (0.023)
Italy	2206	0.220	1.785	0.398	0.204	6974	0.573	2.870	172 (0.078)
Luxembourg	130	0.194	2.077	0.415	0.177	8808	2.772	3.284	0 (0)
Latvia	12	0.191	1.700	1.000	0.417	406	4.35	2.240	0 (0)
Netherlands	1372	0.271	0.843	0.382	0.188	17,645	2.146	2.030	29 (0.021)
Poland	878	0.175	1.146	0.319	0.117	3353	4.449	2.362	78 (0.089)
Portugal	604	0.195	1.920	0.425	0.238	5144	1.435	2.850	47 (0.078)
Slovenia	128	0.204	1.750	0.414	0.180	3041	− 0.214	2.593	7 (0.055)
Slovakia	69	0.172	1.181	0.478	0.246	2433	5.259	2.391	11 (0.159)
Spain	1249	0.213	1.851	0.352	0.172	10,552	2.067	3.005	68 (0.054)
Sweden	2191	0.322	1.014	0.361	0.156	7348	2.477	1.655	24 (0.011)
UK	12,859	0.274	1.222	0.363	0.172	8059	2.364	1.078	14 (0.001)

Panel B: Descriptive statistics of selected variables, SOEs vs. Private firms

	n	AsInt	Dec	SucDec	Employees	Labor Costs/ Sales	Labor Costs /Employees	PrivYear	StratInd	ElecYear	LeftWing
SOE	1208	1.822	0.324	0.143	39,390	0.211	227.76	0.131	0.729	0.268	0.416
Private	39,210	1.550	0.375	0.184	8449	0.267	112.54	n.a	0.121	0.245	0.432
Difference test											
(*p*-value)		0.785	**0.000**	**0.000**	**0.000**	**0.000**	**0.000**	**n.a**	**0.000**	0.067	0.246
Total	**40,418**	**1.558**	**0.373**	**0.183**	**9379**	**0.266**	**116.01**		**0.150**	**0.246**	**0.432**

Notes: For panel B, all statistics are proportional values except for *AsInt, Employees, Labor Costs/ Sales,* and *Labor Costs/ Employees* (mean values). Numbers in **bold** in the row 'difference test' imply that difference between SOE and private firms is significant at the 5% level (two-tailed).

Table 2. Correlation matrix.

	LaborCosts/ Sales	SOE	AsInt	Dec	SucDec	Employees	EPL	CommonLaw	Growth
LaborCosts/Sales		− 0.057***	0.109***	0.061***	0.063***	− 0.122***	− 0.061***	0.039***	− 0.056***
SOE	− 0.061***		0.139***	− 0.018***	− 0.018***	0.186***	0.091***	− 0.115***	− 0.004
AsInt	0.002	0.001		0.035***	0.020***	0.007	0.159***	− 0.091***	− 0.097***
Dec	0.056***	− 0.018***	0.000		0.613***	− 0.061***	0.015***	− 0.016***	− 0.152***
SucDec	0.056***	− 0.018***	− 0.004	0.613***		− 0.050***	0.027***	− 0.20***	− 0.087***
Employees	− 0.039***	0.160***	− 0.003	− 0.021***	− 0.018***		0.034***	− 0.042***	0.012**
EPL	− 0.046***	0.096***	0.009	0.015***	0.026***	0.038***		− 0.831***	− 0.271***
CommonLaw	0.029***	− 0.115***	− 0.007	− 0.016***	− 0.020***	− 0.032***	− 0.843***		0.219***
Growth	− 0.052***	− 0.001	− 0.000	− 0.175***	− 0.095***	− 0.024***	− 0.197***	0.161***	

Notes: The numbers below the diagonal represent the Pearson correlation coefficients; the numbers above the diagonal are the Spearman correlations coefficients.
*Significance at the 10% level (two-tailed).
**Significance at the 5% level (two-tailed).
***Significance at the 1% level (two-tailed).

Table 3. Results of regression analyses: Hypothesis 1.

		Dependent variable: *ΔlnLaborCost*		
Independent variables	Predicted sign	(1)	(2)	(3)
ΔlnSales (β_1)	+	0.673 [0.010]***	0.672 [0.010]***	0.667 [0.010]***
Dec·ΔlnSales (β_2)	−	− 0.277 [0.016]***	− 0.270 [0.016]***	− 0.271 [0.020]***
***SOE·Dec·ΔlnSales* (β_3)**	**−**		**− 0.194 [0.056]*** **	**− 0.174 [0.057]*** **
AsInt·Dec·ΔlnSales (β_4)	−	− 0.002 [0.001]*	− 0.002 [0.001]*	− 0.002 [0.001]*
Suc·Dec·ΔlnSales (β_5)	+	0.138 [0.020]***	0.135 [0.020]***	0.139 [0.021]***
EPL·Dec·ΔlnSales (β_6)	−			− 0.035 [0.020]*
CommonLaw·Dec·ΔlnSales (β_7)	?			0.020 [0.036]
Growth·Dec·ΔlnSales (β_8)	−			0.008 [0.003]**
SOE			− 0.021 [0.004]***	− 0.019 [0.004]***
AsInt		− 0.000 [0.000]***	− 0.000 [0.000]***	− 0.000 [0.000]***
SucDec		− 0.018 [0.002]***	− 0.018 [0.002]***	− 0.017 [0.002]***
EPL				0.001 [0.001]
CommonLaw				0.007 [0.003]***
Growth				0.003 [0.000]***
Industry Dummies		*Included*		
Year Dummies		*Included*		
R^2		0.43	0.43	0.43
N		40,418	40,418	40,418

Notes: This table presents the results of the regression analyses to investigate the degree of cost stickiness of SOEs. The dependent variable is *ΔlnLaborCost* (change of the natural logarithmic value of labor costs). Column 1 does not include the *SOE* variable and its interaction term. Column 2 includes the *SOE variable* and its interaction term. Column 3 includes country-level control variables. Figures in brackets are standard errors, clustered at the firm level. The degree of cost stickiness of SOEs is in **bold** figures. See the appendix for variable definitions.
*Significance at the 10% level (two-tailed).
**Significance at the 5% level (two-tailed).
***Significance at the 1% level (two-tailed).

AsInt·Dec·ΔlnSales are in line with previous literature (e.g. Anderson et al., 2003; Chen et al., 2012; Dierynck et al., 2012).

For the test of H1, in column 2 of Table 3, we introduce the SOE dummy variable to the regression equation.[9] The empirical results support H1, in that we find a significantly negative coefficient for *SOE·Dec·ΔlnSales* ($\beta_3 = -0.194$, $t = -3.44$). On average, SOEs exhibit a higher level of labor cost stickiness than private firms.

Next, we include country-level controls in the regression model. As column 3 in Table 3 shows, the coefficient of *SOE·Dec·ΔlnSales* remains significantly negative ($\beta_3 = -0.174$,

[9]Including two-way interaction terms in the regression specifications leads to severe multicollinearity problems for $\Delta lnSales_{i,t}$ and $Dec_{i,t}.\Delta lnSales_{i,t}$ when we include country-level variables. Therefore, consistent with prior studies of cost stickiness (e.g. Anderson et al., 2003; Chen et al., 2012), we do not use these terms in our specifications.

$t = -3.07$), confirming the greater cost stickiness of SOEs compared with private firms. Consistent with Banker, Byzalov, & Chen (2013), the labor costs of firms from countries with higher EPL scores are stickier (i.e. significantly negative β_6). For *CommonLaw·Dec·ΔlnSales* (β_7), we find insignificant results. The coefficient of *Growth·Dec·ΔlnSales* (β_8) is significantly positive, such that firms from countries with higher GDP growth have less sticky costs. Taken together, these results indicate that, even after controlling for country-level factors, SOEs exhibit greater cost stickiness than private firms.

Turning to H2a, columns 1 and 2 of Table 4 reveal that the coefficient β_9 on *StratInd·Dec·ΔlnSales* is more negative in the SOE subsample than in the private firm subsample ($\beta_{9,\text{SOE}} = -0.201$; $\beta_{9,\text{Privatefirms}} = -0.166$). The Chow test indicates that the coefficient on *StratInd·Dec·ΔlnSales* (β_9) in the SOE subsample is not significantly stronger than the coefficient in the private firm subsample ($F = .65$, $p = .421$). These findings do not support H2a and imply that operating in strategic industries does not increase labor cost stickiness to a significantly greater extent in SOEs than in private firms.

Columns 3 (SOE) and 4 (private firms) of Table 4 further show that election years have significantly positive effects on labor cost stickiness only in the SOE subsample, as signaled by the negative coefficient of *ElecYear·Dec·ΔlnSales* ($\beta_{10} = -0.301$, $t = -2.24$). This effect is not significant in the private firm subsample. The Chow test indicates that the effect of *ElecYear* on cost stickiness in the SOE subsample is significantly stronger than in the private firm subsample ($F = 11.23, p = .00$). These results are consistent with H2b and suggest that states increase their interference with SOEs' labor cost adjustment decisions in election years.

According to column 5 in Table 4, left-wing governments have a significantly positive effect on SOEs' cost stickiness ($\beta_{11} = -0.349$, $t = 2.68$), while column 6 does not indicate a significant effect for private firms. A Chow test shows that the coefficient of *LeftWing·Dec·ΔlnSales* in the SOE subsample is significantly more negative than in the private firm subsample ($F = 15.95$, $p = .00$). These results support H2c; left-wing governments' labor-friendly policies cause SOEs to reduce their labor costs less when sales decline.

Finally, column 7 of Table 4 presents a significantly positive coefficient for *PrePriv1·Dec·ΔlnSales* ($\beta_{12} = 0.340$, $t = 1.71$). Relative to earlier pre-privatization years, labor cost stickiness is significantly lower in the year prior to the privatization year. Column 7 also reveals that, starting with the privatization year, privatized firms exhibit labor cost behavior that is similar to earlier pre-privatization years. These results provide support for H2d and suggest that states tend to restructure their labor force and cut costs rather aggressively in the year prior to privatization.

Overall, these results largely support our predictions that socio-political variables affect the labor cost stickiness of SOEs.

4.3. Cost Stickiness of SOEs and Political Connections

Even as we show that SOEs exhibit greater cost stickiness than private firms, SOEs might not differ substantively from private firms with political connections to a country's top officials, such as when (persons related to) politicians are board members or large shareholders of a private firm (Faccio, 2006). Private firms may obtain political benefits from such connections; it is also possible that states exert political influences on these firms through these connections. For example, politicians may require such firms to delay labor reductions during economic recessions to maintain their popular vote (Bertrand, Kramarz, Schoar, & Thesmar, 2006). Consequently, states can pursue their socio-political interests through both their ownership of firms and their influences on politically connected firms. In terms of cost stickiness, firms' political connections may provide an alternative explanation for the effects of states' socio-political intervention on labor cost stickiness.

Table 4. Results of regression analyses: Hypotheses 2a–d.

		Dependent variable: Δ*lnLaborCost*						
		Test of H2a		Test of H2b		Test of H2c		Test of H2d
	Predicted Sign	*SOEs*	*Private firms*	*SOEs*	*Private firms*	*SOEs*	*Private firms*	*SOEs*
Δ*lnSales* (β_1)	+	0.504 [0.053]***	0.672 [0.010]***	0.507 [0.053]***	0.671 [0.010]***	0.504 [0.053]***	0.671 [0.010]***	0.507 [0.053]***
Dec·Δ*lnSales* (β_2)	−	− 0.083 [0.130]	− 0.257 [0.021]***	− 0.151 [0.100]	− 0.271 [0.022]***	− 0.061 [0.113]	− 0.285 [0.022]***	− 0.203 [0.116]*
AsInt·*Dec*·Δ*lnSales* (β_4)	−	0.042 [0.053]	− 0.002 [0.001]*	0.007 [0.050]	− 0.002 [0.001]*	0.016 [0.051]	− 0.002 [0.001]*	0.019 [0.051]
SucDec·*Dec*·Δ*lnSales* (β_5)	+	0.144 [0.189]	0.132 [0.021]***	0.164 [0.195]	0.139 [0.021]***	0.158 [0.187]	0.137 [0.021]***	0.174 [0.200]
EPL·*Dec*·Δ*lnSales* (β_6)	−	0.077 [0.108]	− 0.036 [0.020]*	0.102 [0.106]	− 0.039 [0.021]*	0.066 [0.108]	− 0.036 [0.021]*	0.058 [0.117]
CommonLaw·*Dec*·Δ*lnSales* (β_7)	?	0.390 [0.233]*	0.016 [0.036]	0.300 [0.248]	0.013 [0.036]	0.427 [0.286]	0.011 [0.036]	0.298 [0.245]
Growth·*Dec*·Δ*lnSales* (β_8)	−	0.020 [0.016]	0.007 [0.003]**	0.019 [0.016]	0.008 [0.003]**	0.029 [0.016]*	0.008 [0.003]**	0.011 [0.016]
***StratInd*·*Dec*·Δ*lnSales* (β_9)**	−	**− 0.201 [0.120]***	**− 0.166 [0.030]*****					
***ElecYear*·*Dec*·Δ*lnSales* (β_{10})**	−			**− 0.301 [0.134]****	**− 0.019 [0.018]**			
***LeftWing*·*Dec*·Δ*lnSales* (β_{11})**	−					**− 0.349 [0.130]*****	**0.024 [0.018]**	
***PrePriv1*·*Dec*·Δ*lnSales* (β_{12})**	+							**0.340 [0.199]***
PrivYear·*Dec*·Δ*lnSales* (β_{13})	?							0.219 [0.161]
PostPriv·*Dec*·Δ*lnSales* (β_{14})	?							− 0.181 [0.127]
AsInt		0.008 [0.003]***	− 0.000 [0.000]***	0.007 [0.003]***	− 0.000 [0.000]***	0.007 [0.003]***	− 0.000 [0.000]***	0.007 [0.003]***
SucDec		− 0.001 [0.018]	− 0.018 [0.002]***	0.001 [0.018]	− 0.018 [0.002]***	0.001 [0.018]	− 0.018 [0.002]***	0.002 [0.019]
EPL		0.013	0.000	0.014	− 0.000	0.014	0.000	0.013

(*Continued*).

Table 4. Continued.

		Dependent variable: Δ*lnLaborCost*						
		Test of H2a		Test of H2b		Test of H2c		Test of H2d
	Predicted Sign	*SOEs*	*Private firms*	*SOEs*	*Private firms*	*SOEs*	*Private firms*	*SOEs*
		[0.007]**	[0.002]	[0.007]**	[0.002]	[0.007]**	[0.002]	[0.007]*
CommonLaw		0.008	0.006	0.009	0.006	0.011	0.006	0.008
		[0.026]	[0.003]**	[0.026]	[0.003]**	[0.027]	[0.003]**	[0.026]
Growth		0.007	0.003	0.007	0.003	0.007	0.003	0.006
		[0.002]***	[0.000]***	[0.002]***	[0.000]***	[0.002]***	[0.000]***	[0.002]***
StratInd		− 0.067	− 0.000					
		[0.016]*	[0.011]					
ElecYear				− 0.015	− 0.003			
				[0.007]**	[0.001]*			
LeftWing						− 0.004	0.002	
						[0.007]	[0.002]	
PrePriv1								0.004
								[0.010]
PrivYear								0.002
								[0.010]
PostPri								0.001
								[0.007]
Industry Dummies				*Included*				
Year Dummies				*Included*				
Chow Test		0.65		11.23***		15.95***		
R^2		0.29	0.44	0.29	0.44	0.30	0.44	0.29
N		1208	39,210	1208	39,210	1208	39,210	1208

Notes: The table presents the results of the regression analyses to investigate the effects of socio-political variables on labor cost stickiness of SOEs and private firms. The dependent variable is Δ*lnLaborCost* (change of the natural logarithmic value of labor costs). The results for SOEs (private firms) are presented in columns 1, 3, and 5 (2, 4, and 6). The variables of interest are *StratInd* (columns 1 and 2), *ElecYear* (columns 3 and 4), and *LeftWing* (columns 5 and 6). Column 7 displays the results of the regression analysis to investigate the effect of privatization on the labor cost stickiness. The *Chow Test* row represents the difference between SOEs and private firms. Figures in brackets are standard errors, clustered at the firm level. The effects of socio-political factors on cost stickiness (hypotheses 2a–2d) are in **bold** figures. See the appendix for variable definitions.
*Significance at the 10% level (two-tailed).
**Significance at the 5% level (two-tailed).
***Significance at the 1% level (two-tailed).

To test the robustness of our H1 findings, we need to demonstrate first that SOEs have stickier labor costs than politically connected firms, and second that politically connected firms do not exhibit higher labor cost stickiness than non-politically connected firms. Therefore, we run two regressions, such that we compare politically connected private firms with non-politically connected private firms in the first equation and then compare SOEs with politically connected private firms in the second equation. To identify political connections, we turn to Faccio's (2006) database. Although these data mostly refer to the year 2001, we assume, consistent with prior research (Faccio, 2006; Richter, 2010), that political connections persist unless dramatic or sudden political changes occur.[10] A dummy variable (*PolCon*) equals 1 if the private firm is politically connected and 0 otherwise. When we run the basic regression equation for only private firms, the politically connected firms exhibit less cost stickiness than non-politically connected ones ($\beta_{16} = 0.106$, $t = 2.12$; see column 1 in Table 5). Compared with non-politically connected firms, politically connected firms reduce their labor costs more when sales decline. As a possible explanation for this finding, we posit that it may be easier for politically connected firms to reduce their labor costs, because they can rely on their political connections to address or overcome resistance from labor unions and other stakeholders. Next, when we include SOEs and politically connected private firms in our sample, we find that SOEs still exhibit greater labor cost stickiness, as indicated by the negative value of β_3 in column 2 of Table 5 ($\beta_3 = -0.237$, $t = 2.64$). Therefore, SOEs appear to experience stronger socio-political pressure to make asymmetric labor cost adjustment decisions than do politically connected private firms, which leads to the greater labor cost stickiness of SOEs.

4.4. Robustness Checks

We conduct several robustness checks. First, differences between SOEs and private firms may increase a possible bias in the estimates, due to the potentially misspecified relation between the dependent and independent variables (Shipman, Swanquist, & Whited, 2017). We therefore use propensity score matching (PSM) to match SOEs with comparable private firms by selecting the private firms that are most similar to SOEs, according to the distribution of observed covariates (Rosenbaum & Rubin, 1985). We modify Borisova et al.'s (2012) approach and use size, sales growth, return on assets, leverage, stock value traded as a percentage of GDP, and industry to match the SOEs with private firm observations. A nearest-neighbor matching approach with a caliper constraint ($\leq .001$) produces the matched pairs (Erkens & Bonner, 2013); we use one-to-one matching without replacement. The PSM produces 1163 matched pairs, and a *t*-test indicates that this PSM is reasonably successful in matching SOE firms with private firms, because the pertinent covariates do not differ significantly across the two groups, except for size and industry. We rerun the regression Equation (1) on our PSM observations. The results in column 1, Table 6, are qualitatively similar to those reported in Table 3, column 3.

Second, SOEs are much larger than private firms on average, so firm size might explain the SOEs' cost behavior. To control for this effect, we use the natural logarithm of the lagged number of employees and interact it with *Dec·ΔlnSales*. Third, cost behavior tends to change during economic crises (Banker, Fang, & Mehta, 2012). Therefore, we rerun the regression up to the year 2007 (before the most recent economic crisis). Fourth, when managing SOEs, states tend to consider their budget conditions (Fan, Wong, & Zhang, 2013). For example, politicians may reduce their socio-political intervention and focus on monitoring SOEs more conscientiously if budget pressures are high, leading to less cost stickiness. To measure the effect of states' budget conditions, we use *BudDef* (countries' budget deficit) data from the World Bank. Fifth, instead

[10] A regression with observations for 2001 only produced results similar to those reported in the main text.

Table 5. Results of regression analyses, controlling for political connections.

		Dependent variable: Δ*lnLaborCost*	
Independent variables	Predicted sign	(1) (*Politically connected vs. non-politically connected private firms*)	(2) (*SOEs vs. politically connected private firms*)
Δ*lnSales* (β_1)	+	0.671	0.640
		[0.010]***	[0.037]***
Dec·Δ*lnSales* (β_2)	−	− 0.278	− 0.154
		[0.021]***	[0.104]
***SOE·Dec·*Δ*lnSales* (β_3)**	−		**− 0.237**
			[0.090]* **
*AsInt·Dec·*Δ*lnSales* (β_4)	−	− 0.002	− 0.013
		[0.001]*	[0.028]
*SucDec·*Δ*lnSales* (β_5)	+	0.138	0.095
		[0.021]***	[0.098]
*EPL·Dec·*Δ*lnSales* (β_6)	−	− 0.040	0.063
		[0.021]*	[0.090]
*CommonLaw·Dec·*Δ*lnSales* (β_7)	?	0.011	0.226
		[0.036]	[0.185]
*Growth·Dec·*Δ*lnSales* (β_8)	−	0.007	0.022
		[0.003]**	[0.014]
***PolCon·Dec·*Δ*lnSales* (β_{16})**		**0.106**	
		[0.050] **	
SOE			− 0.024
			[0.007]***
PolCon		0.004	
		[0.003]	
AsInt		− 0.000	− 0.001
		[0.000]***	[0.002]
SucDec		− 0.018	− 0.009
		[0.002]***	[0.010]
EPL		0.000	0.011
		[0.002]	[0.006]*
CommonLaw		0.006	0.032
		[0.003]**	[0.014]**
Growth		0.003	0.005
		[0.000]***	[0.002]***
Industry Dummies		*Included*	
Year Dummies		*Included*	
R^2		0.44	0.44
N		39,210	2,451

Notes: This table presents the results of the regression analyses that compare politically connected firms with non-politically connected private firms and SOEs. The dependent variable is Δ*lnLaborCost* (change of the natural logarithmic value of number of employees). Using private firm observations only, in column 1, we compare politically connected firms and non-politically connected firms. Column 2 shows the results of comparing SOEs and politically connected private firms. Figures in brackets are standard errors, clustered at the firm level. The effects of political connection and state ownership on cost stickiness are in **bold** figures. See the appendix for variable definitions.
*Significance at the 10% level (two-tailed).
**Significance at the 5% level (two-tailed).
***Significance at the 1% level (two-tailed).

of investigating labor cost behavior, we use the change in the natural logarithmic value of the number of employees as our dependent variable (Dierynck et al., 2012). Sixth, U.K. firms constitute 31.82% of the total number of observations, but they provide only 14 firm-year observations regarding state ownership, which may affect the results disproportionally. Therefore, we rerun

Table 6. Robustness checks.

		Dependent variable: Δ*lnLaborCost* (except column 5: ΔlnLabor)								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Predicted Sign	PSM	Firm size	Pre-crisis periods	Country's budget deficit	Employees	Without UK	Employee skills	Industry	Prior period
Δ*lnSales* (β_1)	+	0.599 [0.038]***	0.676 [0.010]***	0.705 [0.011]***	0.669 [0.010]***	0.611 [0.015]***	0.644 [0.012]***	0.672 [0.010]***	0.669 [0.010]***	0.752/0.419 [0.010***/0.016***]
Dec·Δ*lnSales* (β_2)	−	− 0.137 [0.084]	− 0.262 [0.020]***	− 0.280 [0.024]***	− 0.284 [0.021]***	− 0.248 [0.031]***	− 0.230 [0.022]***	− 0.273 [0.021]***	− 0.225 [0.024]***	− 0.358/0.113 [0.023***/0.029***]
SOE·Dec·*Δ*lnSales ($\boldsymbol{\beta_3}$)	−	**− 0.207 [0.077]*** **	**− 0.306 [0.057]*** **	**− 0.152 [0.071]** **	**− 0.157 [0.057]*** **	**− 0.305 [0.132]** **	**− 0.176 [0.057]*** **	**− 0.181 [0.058]*** **	**− 0.148 [0.056]*** **	**− 0.148/ − 0.207 [0.73**/0.079**]**
AsInt·Dec·ΔlnSales (β_4)	−	− 0.012 [0.016]	− 0.002 [0.001]	− 0.002 [0.001]*	− 0.002 [0.001]*	− 0.003 [0.002]	− 0.001 [0.001]*	− 0.003 [0.002]	− 0.002 [0.001]*	− 0.001/ − 0.036 [0.001*/0.008***]
*SucDec·Dec·*Δ*lnSales* (β_5)	+	0.046 [0.102]	0.163 [0.020]***	0.159 [0.027]***	0.137 [0.021]***	0.187 [0.032]***	0.163 [0.024]***	0.144 [0.021]***	0.134 [0.021]***	
*EPL·Dec·*Δ*lnSales* (β_6)	−	0.068 [0.077]	− 0.034 [0.020]*	− 0.066 [0.026]**	− 0.020 [0.022]	− 0.033 [0.031]	− 0.033 [0.020]	− 0.040 [0.021]*	− 0.038 [0.020]*	− 0.027/ − 0.030 [0.026/0.024]
CommonLaw·Dec· Δ*lnSales* (β_7)	?	0.351 [0.173]**	0.023 [0.035]	− 0.015 [0.046]	0.052 [0.040]	0.008 [0.050]	− 0.006 [0.089]	0.011 [0.037]	0.014 [0.036]	0.007/0.037 [0.046/0.043]
Growth·Dec· Δ*lnSales* (β_8)	−	0.018 [0.013]	0.007 [0.003]**	− 0.017 [0.008]**	0.004 [0.003]	0.012 [0.005]**	0.008 [0.003]**	0.007 [0.003]**	0.007 [0.003]**	0.003/0.012 [0.004/0.004***]
Size·Dec· Δ*lnSales* (β_{17})	−		0.050 [0.005]***							
BudDef·Dec· Δ*lnSales* (β_{18})	+				0.006 [0.003]**					
LagLaborCosts·Dec· Δ*lnSales* (β_{19})	−							− 0.000 [0.000]		
SOE		− 0.020 [0.006]***	− 0.024 [0.004]***	− 0.015 [0.004]***	− 0.018 [0.004]***	− 0.021 [0.006]***	− 0.016 [0.004]***	− 0.020 [0.004]***	− 0.022 [0.004]***	− 0.019 [0.004]***

(*Continued*).

Table 6. Continued.

		Dependent variable: Δ*lnLaborCost* (except column 5: ΔlnLabor)								
		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Predicted Sign	PSM	Firm size	Pre-crisis periods	Country's budget deficit	Employees	Without UK	Employee skills	Industry	Prior period
AsInt		0.000	− 0.000	− 0.000	− 0.000	− 0.000	− 0.000	− 0.000	− 0.000	− 0.000
		[0.002]	[0.000]***	[0.000]***	[0.000]***	[0.000]*	[0.000]***	[0.000]**	[0.000]***	[0.000]***
SucDec		− 0.010	− 0.014	− 0.017	− 0.018	− 0.010	− 0.009	− 0.017	− 0.017	− 0.017
		[0.010]	[0.002]***	[0.003]***	[0.002]***	[0.004]***	[0.003]***	[0.002]***	[0.002]***	[0.002]***
EPL		0.013	0.000	− 0.002	0.003	0.007	0.001	− 0.000	0.000	0.000
		[0.006]**	[0.001]	[0.002]	[0.002]	[0.002]***	[0.002]	[0.002]	[0.002]	[0.001]
CommonLaw		0.025	0.006	0.005	0.011	0.009	0.003	0.006	0.007	0.006
		[0.012]**	[0.003]**	[0.003]	[0.003]***	[0.004]**	[0.007]	[0.003]**	[0.003]***	[0.003]***
Growth		0.006	0.003	0.001	0.002	0.003	0.003	0.003	0.003	0.003
		[0.002]***	[0.000]***	[0.001]	[0.000]***	[0.001]***	[0.001]***	[0.000]***	[0.000]***	[0.000]***
Size			0.002							
								[0.000]		
BudDef					0.001					
					[0.000]***					
LagLaborCost								− 0.000		
								[0.000]		
Industry Dummies						*Included*				
Year Dummies						*Included*				
Industry Dummy·Dec·ΔlnSales						*Included (only for column 8)*				
R^2		0.39	0.44	0.46	0.44	0.18	0.41	0.44	0.43	0.44
N		2,326	39,716	27,951	40,143	39,500	27,559	39,716	40,418	40,418

Notes: This table presents the results of various robustness tests. The dependent variable is Δ*lnLaborCost* (change of the natural logarithmic value of labor costs), except in column 5, where the dependent variable is Δ*lnEmployee* (change of the natural logarithmic value of number of employees). Column 1 presents the regression equation results after matching SOE observations with private firms using PSM. Columns 2, 4, and 7 show the results after taking the effects of firm size, country's budget deficit, and firms' lagged labor cost per employee, respectively. Column 3 displays the results of the regression using firm-year observations up to year 2007. In column 6 the sample excludes U.K. observations. In column 8, we interact the industry dummies with *Dec·ΔlnSales.* In column 9, we follow Banker et al. (2014) and develop two dummy variables based on prior-period sales changes: increase and decrease (*PriorInc* and *PriorDec*). We then develop four-way interactions between our variables and *PriorInc* or *PriorDec.* When there are two figures in the same cells, the first figure refers to the *PriorInc* result, and the latter figure refers to the *PriorDec* result. Figures in brackets are standard errors, clustered at the firm level. The degree of cost stickiness of SOEs is in **bold** figures. See the Appendix for definitions of all other variables.

*Significance at the 10% level (two-tailed).

**Significance at the 5% level (two-tailed).

***Significance at the 1% level (two-tailed).

the regression without U.K. firms. Seventh, SOEs tend to operate in strategic industries that require more skilled labor, implying greater cost stickiness (Banker, Byzalov, & Chen, 2013). To control for this factor, we use the lagged labor costs per employee as a proxy for employee skills and interact it with *Dec·ΔlnSales*. Eighth, though we included industry dummies in our specification to control for industry effects, as a further control for the industry effects on labor cost stickiness, we interact the industry dummies with *Dec·*Δ*lnSales*.[11] Ninth, Banker, Byzalov, Ciftci, and Mashruwala (2014) suggest that cost behavior in the current period is conditional on the direction of prior-period sales changes, because managers use these changes as references to predict future sales changes and make their resource adjustment decisions accordingly. We use a two-period formula from Banker et al. (2014) to disentangle the effect of prior-period sales changes on cost stickiness. As Table 6 shows, the results of these additional tests consistently indicate that SOEs exhibit more asymmetric cost behavior than do private firms.[12]

Strong governance helps minimize managerial opportunistic behavior (Chen et al., 2012) or governments' socio-political intervention (Ben-Nasr et al., 2012). Therefore, SOEs in countries with stronger governance might exhibit less labor cost stickiness than SOEs in countries with weaker corporate governance. To test these arguments empirically, we divide our sample into two groups, based on the median value of three governance-related variables: investor protection (*InvProt*), the percentage of institutional ownership (*InstOwn*), and government effectiveness (*GoftEff*) (Banker et al., 2013b; Bertay, Demirguc-Kunt, & Huizinga, 2015; Chen et al., 2012).[13] As Table 7 shows, in all the below-median subsamples (columns 1, 3, and 5), SOEs exhibit significantly greater cost stickiness than private firms. In the above-median subsamples (columns 2, 4, and 6), SOEs exhibit significantly greater cost stickiness than private firms only in column 6 (*InstOwn* variable). The Chow test indicates that the coefficient of the *SOE·Dec·*Δ*lnSales* term for the above-median *GovtEff* subsample is significantly less negative than that for the below-median subsample, and there is no difference between the *SOE·Dec·*Δ*lnSales* of the above- and below-median *InvProt* and *InstOwn* subsamples. Thus, the results cannot unequivocally support the idea that strong corporate governance mechanisms are effective for mitigating managerial opportunistic behavior or governments' tendency to intervene in SOEs to attain their socio-political interests.

4.5. Supplemental Analysis

Although labor costs arguably are more subject to managerial discretion and socio-political intervention than more aggregated cost categories (Dierynck et al., 2012; Shleifer, 1998; Shleifer & Vishny, 1994), selling, general, and administrative (SG&A) and operating costs are more common in cost stickiness literature (Anderson et al., 2003; Banker et al., 2013a; Calleja et al., 2006; Chen et al., 2012). Therefore, we investigate whether the significant effect of state ownership on cost stickiness also applies to SG&A and operating costs. In our overall sample, labor costs constitute a small portion of total operating costs (ratio = 0.277) but they are higher than SG&A costs (ratio = 1.763). In this sense, labor cost behavior may not be closely related to behaviors

[11] We use the Fama-French 5-industry classification for this robustness test to avoid multicollinearity concerns.

[12] As additional tests, we define a firm-year observation as an SOE if the state holds at least 5%, 10%, or 20% ownership. Using these more restrictive definitions of SOEs did not alter our results.

[13] Consistent with Banker, Byzalov, and Threinen (2013) we use the composite anti-self-dealing index developed by Djankov, La Porta, Lopez-De-Silanez, and Shleifer (2008). We must exclude firms from Estonia and Slovenia, because these countries are not represented in the anti-self-dealing index database. Meanwhile, we construct the variable *InstOwn* by deducting *CloselyHeldShare%* (percentage of shares held by all insiders; obtained from Datastream) from the percentage of government ownership for SOEs. In line with Bertay et al. (2015), we use a measure of government effectiveness from Worldwide Governance Indicators to represent *GoftEff* (Kaufmann & Kraay, 2014). Because *InvProt* and *CommonLaw* are almost perfectly correlated (0.970), we do not include *CommonLaw*.

Table 7. Robustness check after splitting the sample at median values of the governance variables.

		Dependent variable: $\Delta lnLaborCost$					
		InvProt		GovtEff		InstOwn	
Independent variables	Predicted sign	(1) Low	(2) High	(3) Low	(4) High	(5) Low	(6) High
$\Delta lnSales$ (β_1)	+	0.646	0.687	0.630	0.697	0.705	0.644
		[0.014]***	[0.013]***	[0.014]***	[0.013]***	[0.014]***	[0.015]***
$Dec{\cdot}\Delta lnSales$ (β_2)	−	− 0.263	− 0.293	− 0.314	− 0.257	− 0.276	− 0.242
		[0.026]***	[0.026]***	[0.031]***	[0.027]***	[0.027]***	[0.025]***
***SOE·Dec·ΔlnSales* (β_3)**	−	**− 0.170**	**− 0.161**	**− 0.185**	**− 0.115**	**− 0.293**	**− 0.367**
		[0.064]* **	**[0.106]**	**[0.071]*** **	**[0.082]**	**[0.082]*** **	**[0.129]*** **
$AsInt{\cdot}Dec{\cdot}\Delta lnSales$ (β_4)	−	− 0.019	− 0.002	− 0.023	− 0.002	− 0.059	− 0.002
		[0.010]*	[0.001]*	[0.009]***	[0.001]*	[0.013]***	[0.001]**
$SucDec{\cdot}\Delta lnSales$ (β_5)	+	0.156	0.118	0.151	0.128	0.126	0.135
		[0.028]***	[0.030]***	[0.029]***	[0.029]***	[0.032]***	[0.031]***
$EPL{\cdot}Dec{\cdot}\Delta lnSales$ (β_6)	−	− 0.001	− 0.054	0.075	0.002	− 0.027	− 0.036
		[0.022]	[0.019]***	[0.027]***	[0.024]	[0.018]	[0.018]**
$Growth{\cdot}Dec{\cdot}\ \Delta lnSales$ (β_8)	−	0.008	0.008	0.009	0.007	0.011	0.005
		[0.004]**	[0.005]*	[0.004]**	[0.004]	[0.004]**	[0.005]
SOE		− 0.014	− 0.026	− 0.012	− 0.027	− 0.020	− 0.022
		[0.005]***	[0.006]***	[0.004]***	[0.007]***	[0.005]***	[0.010]**
AsInt		− 0.002	− 0.000	− 0.002	− 0.000	0.000	− 0.000
		[0.001]*	[0.000]***	[0.001]**	[0.000]***	[0.000]	[0.000]***
SucDec		− 0.012	− 0.024	− 0.012	− 0.022	− 0.019	− 0.018
		[0.003]***	[0.004]***	[0.003]***	[0.004]***	[0.004]***	[0.004]***
EPL		0.004	− 0.006	0.009	− 0.003	− 0.005	0.000
		[0.002]**	[0.002]***	[0.002]***	[0.002]*	[0.001]***	[0.001]
Growth		0.004	0.001	0.005	− 0.001	0.001	0.003
		[0.001]***	[0.001]	[0.001]***	[0.001]	[0.001]*	[0.001]***
Industry Dummies					*Included*		
Year Dummies					*Included*		
Chow Test		**0.69**		**4.74****		**0.74**	
R^2		0.41	0.46	0.40	0.47	0.49	0.42
N		20,750	19,668	19,529	20,889	16,318	16,303

Notes: This table presents the results of the regression analyses after splitting the sample into two subsamples based on the median value of the three governance variables (*InvProt*, *GovtEff*, and *InstOwn*). The dependent variable is $\Delta lnLaborCost$ (change of the natural logarithmic value of labor costs). The results for the below-median (above-median) subsamples are presented at columns 1, 3, and 5 (2, 4, and 6). Figures in brackets are standard errors, clustered at the firm level. The degree of cost stickiness of SOEs is in **bold** figures. See the appendix for variable definitions.

*Significance at the 10% level (two-tailed).

**Significance at the 5% level (two-tailed).

***Significance at the 1% level (two-tailed).

Table 8. Supplemental analyses using different cost categories.

		Dep. Var: $\Delta lnSG\&A$	Dep. Var: $\Delta lnOprCosts$
Independent variables	Predicted Sign	(1)	(2)
$\Delta lnSales$ (β_1)	+	0.661	0.886
		[0.016]***	[0.006]***
$Dec \cdot \Delta lnSales$ (β_2)	−	− 0.127	− 0.080
		[0.042]***	[0.013]***
***SOE·Dec·ΔlnSales* (β_3)**	−	**0.080**	**0.034**
		[0.100]	**[0.037]**
$AsInt \cdot Dec \cdot \Delta lnSales$ (β_5)	−	− 0.004	− 0.006
		[0.002]**	[0.002]**
$SucDec \cdot Dec \cdot \Delta lnSales$ (β_4)	+	0.039	0.043
		[0.040]	[0.014]***
$EPL \cdot Dec \cdot \Delta lnSales$ (β_6)	−	− 0.033	− 0.042
		[0.042]	[0.014]***
$CommonLaw \cdot Dec \cdot \Delta lnSales$ (β_7)	?	− 0.064	− 0.071
		[0.066]	[0.024]***
$Growth \cdot Dec \cdot \Delta lnSales$ (β_8)	−	0.005	0.010
		[0.005]	[0.002]***
SOE		0.002	0.002
		[0.009]	[0.002]
AsInt		− 0.000	− 0.000
		[0.000]***	[0.000]*
SucDec		− 0.026	− 0.008
		[0.005]***	[0.001]***
EPL		0.002	0.000
		[0.003]	[0.001]
CommonLaw		− 0.009	− 0.001
		[0.005]*	[0.001]
Growth		0.002	0.002
		[0.001]**	[0.000]***
Industry Dummies		*Included*	
Year Dummies		*Included*	
R^2		0.25	0.80
N		26,430	38,970

Notes: This table presents the regression analyses using the logarithmic value of the change in different cost categories (SG&A and operating costs). The dependent variable is $\Delta lnSG\&A$ and $\Delta lnOprCost$ (change of the natural logarithmic value of SG&A and operating costs, respectively). Figures in brackets are standard errors, clustered at the firm level. The degree of cost stickiness of SOEs is in **bold** figures. See the Appendix for variable definitions.
*Significance at the 10% level (two-tailed).
**Significance at the 5% level (two-tailed).
***Significance at the 1% level (two-tailed).

associated with operating or SG&A costs. We mimic the steps delineated for the final firm-year sample, except that we use alternative cost criteria for this analysis and do not delete observations with SG&A (operating costs) > sales.

As Table 8 shows, the sample firms exhibit cost stickiness for either of the alternative cost categories ($Dec \cdot \Delta lnSales$ is significantly negative); however, the results indicate that SOE does not have a significant effect on cost stickiness for the alternative cost categories as none of the $SOE \cdot Dec \cdot \Delta lnSales$ coefficients is negative. These analyses thus reveal that state ownership does not cause cost stickiness in more aggregated cost categories. Rather, SOEs may exhibit cost stickiness only in categories that are directly susceptible to socio-political influence (Shleifer, 1998; Shleifer & Vishny, 1994). Because only the labor costs of SOEs exhibit greater cost stickiness, these results further suggest that omitted technological or economic factors are unlikely to explain differences between SOEs and private firms.

5. Conclusions

With a sample of firms from 22 European countries during 1993–2012, we investigate the role of state ownership in explaining asymmetric cost behavior. Consistent with our predictions, we find that SOEs exhibit greater cost stickiness than private firms, which is due to stronger socio-political influences over the SOEs. The results demonstrate that the effects of election years and left-wing governments on labor cost stickiness is stronger in SOEs than in private firms. Moreover, in the year prior to privatization, labor cost stickiness decreases, possibly due to pre-privatization labor restructuring. Our results are also robust to various sensitivity analyses.

Different owners have different incentives with regard to managing costs (Grossman & Hart, 1986; Hart & Moore, 1990; Shleifer, 1998) and recent literature suggests that ownership type affects firms' cost behavior (Hall, 2016; Holzhacker et al., 2015). We contribute to this stream of literature by showing that a particular ownership type (i.e. state ownership) has significant effects on asymmetric cost behavior. Our cross-country setting also reveals the role of socio-political variables for explaining SOEs' labor cost stickiness; these variables help detail the differences in labor cost stickiness between SOEs and private firms. Our findings thus contribute to an expanded understanding of the effects of state ownership on firm performance and other outcome variables. State ownership of profit-seeking firms remains important (Christiansen, 2011), and understanding the impact on labor cost stickiness represents a means to advance the ongoing debate about whether state ownership is beneficial to SOE performance in general. Our research contributes to this debate by illuminating the role of state ownership and socio-political factors in resource adjustment decisions and the cost behavior that ensues from these decisions.

Acknowledgement

We thank Halit Gonenc, Abe de Jong, Bob Scapens, the editor (Laurence van Lent), and the reviewer for helpful comments. The paper also benefited from comments of seminar participants at the University of Groningen, the 2015 ACMAR Doctoral Colloquium at the WHU – Otto Beisheim School of Management, and the 38th EAA Annual Congress in Glasgow. Ronny Prabowo acknowledges financial support from the Ministry of Research, Technology, & Higher Education of the Republic of Indonesia.

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Appendix

Variable Definitions and Sources

Variables	Definition	Sources
ΔlnLaborCost	The change of the natural logarithmic value of labor costs ($ln\ LaborCosts_{i,t} - ln\ LaborCost_{i,t-1}$)	Datastream
ΔlnSales	The change of the natural logarithmic value of labor costs ($ln\ Sales_{i,t} - ln\ Sales_{i,t-1}$)	Datastream
Dec	A dummy variable equal to 1 if $Sales_{i,t} < Sales_{i,t-1}$, and 0 otherwise (deflated figures)	Datastream
SOE	A dummy variable equal to 1 if the state has a certain percentage of shares in the firm, and 0 otherwise	Privatization Barometer, firms' annual reports, financial statements, or websites
AsInt	Total assets divided by net sales	Datastream
SucDec	A dummy variable equal to 1 if $Sales_{i,t} < Sales_{i,t-1} < Sales_{i,t-2}$, and 0 otherwise (deflated figures)	Datastream
EPL	Unweighted average of OECD measures of strictness of labor regulation regarding employee dismissal, categorized into three types: individual dismissal of regular workers, temporary workers, and collective dismissal.	Organisation for Economic Co-operation and Development (2013)
CommonLaw	A dummy variable equal to 1 if the firm's domicile country has common-law legal origin (UK and Ireland), and 0 otherwise	La Porta et al. (1998)
Growth	Annual percentage of GDP change at market prices based on current local currency	The World Bank (2013)
StratInd	A dummy variable equal to 1 if the SOE's main activities are in mining, oil, steel, transportation, utilities, defense and telecommunication and 0 otherwise.	Fama and French (2016), Boubakri et al. (2009)
ElecYear	A dummy variable equal to 1 if the reporting year is country's election year, 0 otherwise	*Europe World Year Book* (2006), Election Guide (International Foundation for Electoral Systems, 2014)
LeftWing	A dummy variable equal to 1 if the ruling government in the year is a left-wing one, and 0 otherwise	World Bank Database of Political Institutions
PrePriv1	A dummy variable equal to 1 if the SOE observation is made one year before an SOE privatization and 0 otherwise	Privatization Barometer, firms' annual reports, financial statements, or websites
PrivYear	A dummy variable equal to 1 if the SOE is privatized in the current year, and 0 otherwise	Privatization Barometer, firms' annual reports, financial statements, or websites
PostPriv	A dummy variable equal to 1 if the SOE observation is made after an SOE privatization and 0 otherwise	Privatization Barometer, firms' annual reports, financial statements, or websites